

SEQUENCE LISTING

<110> Croteau, Rodney et al.

<120> Transacylases of the Paclitaxel Biosynthetic Pathway

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<150> 09/411,145

<151> 1999-09-30

<160> 58

<170> PatentIn Ver. 2.0

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Ser Asn Pro Ser Phe Gln Gln Leu Leu Phe Ser Leu Pro Leu Asp Thr
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 115 120 125
 Lys Leu Asp Asp Pro Lys Tyr Leu Gln Phe Phe His Phe Glu Phe Leu
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 Arg Ala Pro Ser Ile Val Glu Lys Ile Val Gln Thr Tyr Phe Ile Ile
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 Lys Glu Phe Cys Ser Ser Phe Glu Val Ala Ser Ala Met Thr Trp Ile
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 Ala Arg Thr Arg Ala Phe Gln Ile Pro Glu Ser Glu Tyr Val Lys Ile
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 210 215 220
 Gly Tyr Tyr Gly Asn Ser Ile Gly Thr Ala Cys Ala Val Asp Asn Val
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 Lys Ser Lys Val Ser Leu Asn Asp Asn Phe Lys Ser Arg Ala Val Val
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 35 40 45
 Tyr Asp Pro Ser Phe Gln Gln Leu Val Phe Tyr Leu Pro Glu Asp Val
 50 55 60
 Asn Ile Glu Asp Leu His Leu Leu Thr Val Gln Val Thr Arg Phe Thr
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 Cys Gly Gly Phe Val Val Gly Thr Arg Phe His His Ser Val Ser Asp
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 His Pro Pro Leu Asn Leu Glu Lys Ser Ile Gln Ala Ser Met Val Ile
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 Ser Leu Glu Arg Ile Asn Tyr Ile Lys Arg Cys Met Met Glu Glu Cys
 165 170 175
 Lys Glu Phe Phe Ser Ala Phe Glu Val Val Val Ala Leu Ile Trp Leu
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 Ala Arg Thr Lys Ser Phe Arg Ile Pro Pro Asn Glu Tyr Val Lys Ile
 195 200 205
 Ile Phe Pro Ile Asp Met Arg Asn Ser Phe Asp Ser Pro Leu Pro Lys
 210 215 220
 Gly Tyr Tyr Gly Asn Ala Ile Gly Asn Ala Cys Ala Met Asp Asn Val
 225 230 235 240
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Lys Pro Ser Ala Leu Asp Ala Asn Met Lys His Glu Asn Val Val Gly
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Gly Lys
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Gly Gln Phe Leu Gln Gly Met Ala Glu Met Ala Arg Gly Glu Val Lys
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 Cys Met Pro Phe Arg Met Ser His Leu Gln Ile Ile His Ala Pro Leu
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 Ile Glu Glu Lys Phe Val Gln Thr Ser Leu Val Ile Asn Phe Glu Ile
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 Ser Ser Phe Glu Ile Val Ala Ala Leu Val Trp Leu Ala Lys Ile Lys
 180 185 190
 Ala Phe Gln Ile Pro His Ser Glu Asn Val Lys Leu Leu Phe Ala Met
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 Asp Leu Arg Arg Ser Phe Asn Pro Pro Leu Pro His Gly Tyr Tyr Gly
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 Asn Ala Phe Gly Ile Ala Cys Ala Met Asp Asn Val His Asp Leu Leu
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 Ser Gly Ser Leu Leu Arg Ala Ile Met Ile Ile Lys Lys Ser Lys Phe
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 35 40 45

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 50 55 60

Leu His Leu Met Thr Val Gln Val Thr Arg Phe Thr Cys Gly Gly Phe
 65 70 75 80

Val Met Gly Thr Ser Val His Gln Ser Ile Cys Asp Gly Asn Gly Leu
 85 90 95

Gly Gln Phe Phe Lys Ser Met Ala Glu Met Val Arg Gly Glu Val Lys
 100 105 110

Pro Ser Ile Glu Pro Val Trp Asn Arg Glu Leu Val Lys Pro Glu Asp
 115 120 125

Tyr Ile His Leu Gln Leu Tyr Ile Gly Glu Phe Ile Arg Pro Pro Leu
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Pro	Ser	Ser	Glu	Pro	Ile	Trp	Lys	Arg	Glu	Leu	Leu	Lys	Pro	Glu	Asp	115	120	125	
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Leu	Ser	Gly	Ser	Leu	Leu	Arg	Val	Val	Arg	Ile	Ile	Lys	Lys	Ala	Lys	245	250	255	
Val	Ser	Leu	Asn	Glu	His	Phe	Thr	Ser	Thr	Ile	Val	Thr	Pro	Arg	Ser	260	265	270	
Gly	Ser	Asp	Glu	Ser	Ile	Asn	Tyr	Glu	Asn	Ile	Val	Gly	Phe	Gly	Asp	275	280	285	
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<400> 13

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acagggcagg gtgttctgtt tctggaagcc atggctgaca gcgaccttc agtcttaaca 120
gatctcgata actacaatcc atcgtttcag cagttgattt tttctctacc acaggataca 180
gatattgagg acctccatct cttgattgtt caggtaactc gttttacatg tgggggtttt 240
gttggtggag cgaatgtgta tggtagtaca tgcgatgcaa aaggatttgg ccagtttctt 300
caaggatagg cagagatggc gagaggagag gttaagccct cgattgaacc gatatggaat 360
aagagaactg gtgaagctag aagagagggt aagccctcga ttgaaccgat atggaataag 420
agaactggtg aagctagaag attgtatgcc ctttccggga tgagtcactt tcaaattata 480
cacgcacctg taattgagga gaaatttgtt caaacatctc ttgttataaa ctttgagata 540
ataaatcata tcagacgacg catcatggaa gaatgcaaag aaagtttatc ttcatttgaa 600
attgtagcag cattggtttg gctagcaaag ataaaggctt ttcaaattcc acatagttag 660
aatgtgaagc ttctttttgc aatggacttg aggagatcat ttaatcccc tcttccacat 720
ggatactatg gcaatgcctt tggatttgca tgtgcaatgg ataatgtcca tgaccttcta 780
agtggatctc ttttgcgcac tataatgatc ataaagaaat caaagttctc tttacacaaa 840
gaactcaact caaaaaccgt gatgagctcg tctgtagtag atgtcaatac gaagtttgaa 900
gatgtagttt caattagtga ttggaggcat tctatatatt atgaagtgga ctttggctgg 960
ggtaaacc 968
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<210> 14

<211> 322

<212> PRT

<213> Taxus cuspidata

<400> 14

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Phe Tyr Pro Phe Ala Gly Arg Leu Arg Asn Lys Glu Asn Gly Glu Leu
  1             5             10             15

Glu Val Glu Cys Thr Gly Gln Gly Val Leu Phe Leu Glu Ala Met Ala
      20             25             30

Asp Ser Asp Leu Ser Val Leu Thr Asp Leu Asp Asn Tyr Asn Pro Ser
      35             40             45

Phe Gln Gln Leu Ile Phe Ser Leu Pro Gln Asp Thr Asp Ile Glu Asp
      50             55             60

Leu His Leu Leu Ile Val Gln Val Thr Arg Phe Thr Cys Gly Gly Phe
      65             70             75             80

Val Val Gly Ala Asn Val Tyr Gly Ser Thr Cys Asp Ala Lys Gly Phe
      85             90             95

Gly Gln Phe Leu Gln Gly Met Ala Glu Met Ala Arg Gly Glu Val Lys
      100             105             110

Pro Ser Ile Glu Pro Ile Trp Asn Lys Arg Thr Gly Glu Ala Arg Arg
      115             120             125

Glu Val Lys Pro Ser Ile Glu Pro Ile Trp Asn Lys Arg Thr Gly Glu
      130             135             140

Ala Arg Arg Leu Tyr Ala Leu Ser Gly Met Ser His Leu Gln Ile Ile
      145             150             155             160

His Ala Pro Val Ile Glu Glu Lys Phe Val Gln Thr Ser Leu Val Ile
      165             170             175

Asn Phe Glu Ile Ile Asn His Ile Arg Arg Arg Ile Met Glu Glu Cys
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180					185					190						
Lys	Glu	Ser	Leu	Ser	Ser	Phe	Glu	Ile	Val	Ala	Ala	Leu	Val	Trp	Leu	
195					200					205						
Ala	Lys	Ile	Lys	Ala	Phe	Gln	Ile	Pro	His	Ser	Glu	Asn	Val	Lys	Leu	
210					215					220						
Leu	Phe	Ala	Met	Asp	Leu	Arg	Arg	Ser	Phe	Asn	Pro	Pro	Leu	Pro	His	
225					230					235					240	
Gly	Tyr	Tyr	Gly	Asn	Ala	Phe	Gly	Ile	Ala	Cys	Ala	Met	Asp	Asn	Val	
245					250					255						
His	Asp	Leu	Leu	Ser	Gly	Ser	Leu	Leu	Arg	Thr	Ile	Met	Ile	Ile	Lys	
260					265					270						
Lys	Ser	Lys	Phe	Ser	Leu	His	Lys	Glu	Leu	Asn	Ser	Lys	Thr	Val	Met	
275					280					285						
Ser	Ser	Ser	Val	Val	Asp	Val	Asn	Thr	Lys	Phe	Glu	Asp	Val	Val	Ser	
290					295					300						
Ile	Ser	Asp	Trp	Arg	His	Ser	Ile	Tyr	Tyr	Glu	Val	Asp	Phe	Gly	Trp	
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Gly Lys

<210> 15
 <211> 908
 <212> DNA
 <213> Taxus cuspidata

<400> 15
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 gatttgatg ctcataatcc ttcatttcac cagctttctg tttcacctcc agtggattct 180
 gatattgagg gcctccatct tgcagctctt caggtaactc gttttacatg tggggggttt 240
 gttctaggag taagtgttgaa ccaaagtgtg tgcgatggaa aaggattggg aaattttctt 300
 aaaggtgtgg cagagatggt gaggggaaaa gataagccct caattgaacc agtatggaat 360
 agagaaatgg taaagtgtga agactataca cgctccaat tttatcacca tgaattcata 420
 caaccacctt taatagatga gaaaattggt caaaaatctc ttgttataaa cttggagaca 480
 ataaatatta tcaaacgatg tattatggaa gaatatacaa aatttttctc tacattcgaa 540
 atcgtagcag caatggtttg gctagcaaga acaaaagcct tcaaaattcc acatagtga 600
 aatgcagagc ttctctttac aatggatatg agggaatcat ttaatcccc tcttccaaag 660
 ggatactatg gtaatgttat gggtatagta tgtgcattgg ataatgtcaa acacctatta 720
 agtggatcta ttttgcgtgc tgcaatgggt atacagaaat caagggtttt ctttacagag 780
 aatttccggt taagatctat gacacaacca tctgcattga ctgtgaagat caagcacaaa 840
 aatgtagttg catgtagtga ttggaggcaa tatggatatg atgaagtgga cttcggctgg 900
 ggtaaacc 908

<210> 16
 <211> 302
 <212> PRT
 <213> Taxus cuspidata

<400> 16
 Phe Tyr Pro Phe Ala Gly Arg Leu Arg Asn Lys Glu Asn Gly Asp Leu
 1 5 10 15

Glu	Val	Glu	Cys	Thr	Gly	Glu	Gly	Ala	Val	Phe	Val	Glu	Ala	Met	Ala		
			20					25					30				
Asp	Thr	Asp	Leu	Ser	Ser	Leu	Gly	Asp	Leu	Asp	Ala	His	Asn	Pro	Ser		
		35					40					45					
Phe	His	Gln	Leu	Ser	Val	Ser	Pro	Pro	Val	Asp	Ser	Asp	Ile	Glu	Gly		
	50					55					60						
Leu	His	Leu	Ala	Ala	Leu	Gln	Val	Thr	Arg	Phe	Thr	Cys	Gly	Gly	Phe		
65					70					75					80		
Val	Leu	Gly	Val	Ser	Leu	Asn	Gln	Ser	Val	Cys	Asp	Gly	Lys	Gly	Leu		
				85					90					95			
Gly	Asn	Phe	Leu	Lys	Gly	Val	Ala	Glu	Met	Val	Arg	Gly	Lys	Asp	Lys		
			100					105					110				
Pro	Ser	Ile	Glu	Pro	Val	Trp	Asn	Arg	Glu	Met	Val	Lys	Phe	Glu	Asp		
		115					120					125					
Tyr	Thr	Arg	Leu	Gln	Phe	Tyr	His	His	Glu	Phe	Ile	Gln	Pro	Pro	Leu		
	130					135					140						
Ile	Asp	Glu	Lys	Ile	Val	Gln	Lys	Ser	Leu	Val	Ile	Asn	Leu	Glu	Thr		
145					150					155					160		
Ile	Asn	Ile	Ile	Lys	Arg	Cys	Ile	Met	Glu	Glu	Tyr	Thr	Lys	Phe	Phe		
				165					170					175			
Ser	Thr	Phe	Glu	Ile	Val	Ala	Ala	Met	Val	Trp	Leu	Ala	Arg	Thr	Lys		
			180					185					190				
Ala	Phe	Lys	Ile	Pro	His	Ser	Glu	Asn	Ala	Glu	Leu	Leu	Phe	Thr	Met		
		195					200					205					
Asp	Met	Arg	Glu	Ser	Phe	Asn	Pro	Pro	Leu	Pro	Lys	Gly	Tyr	Tyr	Gly		
	210					215					220						
Asn	Val	Met	Gly	Ile	Val	Cys	Ala	Leu	Asp	Asn	Val	Lys	His	Leu	Leu		
225					230					235					240		
Ser	Gly	Ser	Ile	Leu	Arg	Ala	Ala	Met	Val	Ile	Gln	Lys	Ser	Arg	Phe		
				245					250					255			
Phe	Phe	Thr	Glu	Asn	Phe	Arg	Leu	Arg	Ser	Met	Thr	Gln	Pro	Ser	Ala		
			260					265					270				
Leu	Thr	Val	Lys	Ile	Lys	His	Lys	Asn	Val	Val	Ala	Cys	Ser	Asp	Trp		
		275					280					285					
Arg	Gln	Tyr	Gly	Tyr	Asp	Glu	Val	Asp	Phe	Gly	Trp	Gly	Lys				
	290					295					300						

<210> 17

<211> 908

<212> DNA

<213> Taxus cuspidata

<400> 17

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acggggggaag gtgctctgtt tgtagaagcc atggcgagac acaacctttc agtggtggga 120
ggttttgatt accacaatcc agcatttggg aagctacttt actcactacc actggatacc 180
cctatttcacg acctccatcc tctggttgtt caggtaactc gttttacctg cgggggggtt 240
gttgtgggat taagtttggg ccatactata tgtgatggac gtggtgcagg tcaatttctt 300
aaagccctag cagaratggc gaggggagag gctaagccct cattggaacc aatatggaat 360
agagagtgtg tgaagcccga agaccttata cgctgcaat tttatcactt tgaatcgatg 420
cgtccacctc caatagttga agaaatgggt caatcatcta ttattataaa tgctgagaca 480
ataagtaata tsaaacaata cattatggaa gaatgtaaag aatcttggtc tgcatttgat 540
gtcgtaggag gattggcttg gctagccagg acaaaggctt ttcaaattcc acatacagag 600
aatgtgatgg ttatttttgc agtggatgcg aggagatcat ttgatccacc acttccaaag 660
ggttactatg gtaatgtcgt tggtaatgca tgtgcattgg ataatgttca agacctctta 720
aatggatctc ttttgcgtgc tacaatgatt ataaagaaat caaaggatc tttaaaagag 780
aatataaggg caaaaacttt gacgatacca tctatagtag atgtgaatgt gaaacatgaa 840
aacatagttg gattaggcga tttgagacga ctgggattta atgaagtgga cttcggctgg 900
ggsaagcc 908
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<210> 18

<211> 302

<212> PRT

<213> *Taxus cuspidata*

<400> 18

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Phe Tyr Pro Phe Ala Gly Arg Met Arg Asn Lys Gly Asp Gly Glu Leu
  1              5              10              15

Glu Val Asp Cys Thr Gly Glu Gly Ala Leu Phe Val Glu Ala Met Ala
          20              25              30

Asp Asp Asn Leu Ser Val Leu Gly Gly Phe Asp Tyr His Asn Pro Ala
          35              40              45

Phe Gly Lys Leu Leu Tyr Ser Leu Pro Leu Asp Thr Pro Ile His Asp
          50              55              60

Leu His Pro Leu Val Val Gln Val Thr Arg Phe Thr Cys Gly Gly Phe
          65              70              75              80

Val Val Gly Leu Ser Leu Asp His Thr Ile Cys Asp Gly Arg Gly Ala
          85              90              95

Gly Gln Phe Leu Lys Ala Leu Ala Glu Met Ala Arg Gly Glu Ala Lys
          100              105              110

Pro Ser Leu Glu Pro Ile Met Asn Arg Glu Leu Leu Lys Pro Glu Asp
          115              120              125

Leu Ile Arg Leu Gln Phe Tyr His Phe Glu Ser Met Arg Pro Pro Pro
          130              135              140

Ile Val Glu Glu Met Val Gln Ser Ser Ile Ile Ile Asn Ala Glu Thr
          145              150              155              160

Ile Ser Asn Xaa Lys Gln Tyr Ile Met Glu Glu Cys Lys Glu Ser Cys
          165              170              175

Ser Ala Phe Asp Val Val Gly Gly Leu Ala Met Leu Ala Arg Thr Lys
          180              185              190

Ala Phe Gln Ile Pro His Thr Glu Asn Val Met Val Ile Phe Ala Val
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195	200	205
Asp Ala Arg Arg Ser Phe Asp Pro Pro Leu Pro Lys Gly Tyr Tyr Gly 210 --- 215 220		
Asn Val Val Gly Asn Ala Cys Ala Leu Asp Asn Val Gln Asp Leu Leu 225 230 235 240		
Asn Gly Ser Leu Leu Arg Ala Thr Met Ile Ile Lys Lys Ser Lys Val 245 250 255		
Ser Leu Lys Glu Asn Ile Arg Ala Lys Thr Leu Thr Ile Pro Ser Ile 260 265 270		
Val Asp Val Asn Val Lys His Glu Asn Ile Val Gly Leu Gly Asp Leu 275 280 285		
Arg Arg Leu Gly Phe Asn Glu Val Asp Phe Gly Trp Gly Lys 290 295 300		

<210> 19
 <211> 911
 <212> DNA
 <213> Taxus cuspidata

<400> 19
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 acaggggatg gtgctctgtt tgtggaagcc atgggtggaag acaccatttc agtcttacga 120
 gatctggatg acctcaatcc atcatttcag cagttagttt tttggcatcc attggacact 180
 gctattgagg atcttcatct tgtgattgtt caggtaacac gttttacatg tgggggcatt 240
 gccgttggag tgactttgcc ccatagtgtg tgtgatggac gtggagcacc ccagtttgtt 300
 acagcactgg cagaaatggc gaggggagag gttaagccct tattagaacc aatatggaat 360
 agagaattgt tgaaccctga agaccctcta catctccagt taaatcaatt tgattcgata 420
 tgcccacctc caatgctcga ggaattgggt caagcttctt ttgttataaa tgttgacacc 480
 atagaatata tgaaacaatg tggttatggag gaatgtaatg atttttgttc gtcctttgaa 540
 gtagtggcag catttggttt gatagcaagg acaaaggctc ttcaaattcc acatactgag 600
 aatgtgaagc ttctctttgc gatggatttg aggaaattat ttaatccccc acttccaaat 660
 ggatattatg gtaatgccat tgggtactgca tatgcaatgg ataatgtcca agacctctta 720
 aatggatctc ttttgcggtgc tataatgatt ataaaaaaag caaaggctga tttaaaagat 780
 aattattcga ggtcaagggt agttacaaac ccaaattcat tagatgtgaa caagaaatcc 840
 aacaacattc ttgcattgag tgactggagg cggttgggat tttatgaagc cgattttggc 900
 tgggggcaagc c 911

<210> 20
 <211> 303
 <212> PRT
 <213> Taxus cuspidata

<400> 20
 Tyr Tyr Pro Leu Ala Gly Arg Leu Arg Ser Lys Glu Ile Gly Glu Leu
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 Glu Val Glu Cys Thr Gly Asp Gly Ala Leu Phe Val Glu Ala Met Val
 20 25 30
 Glu Asp Thr Ile Ser Val Leu Arg Asp Leu Asp Asp Leu Asn Pro Ser
 35 40 45
 Phe Gln Gln Leu Val Phe Trp His Pro Leu Asp Thr Ala Ile Glu Asp
 50 55 60

Leu His Leu Val Ile Val Gln Val Thr Arg Phe Thr Cys Gly Gly Ile
 65 70 75 80
 Ala Val Gly Val Thr Leu Pro His Ser Val Cys Asp Gly Arg Gly Ala
 85 90 95
 Pro Gln Phe Val Thr Ala Leu Ala Glu Met Ala Arg Gly Glu Val Lys
 100 105 110
 Pro Leu Leu Glu Pro Ile Trp Asn Arg Glu Leu Leu Asn Pro Glu Asp
 115 120 125
 Pro Leu His Leu Gln Leu Asn Gln Phe Asp Ser Ile Cys Pro Pro Pro
 130 135 140
 Met Leu Glu Glu Leu Gly Gln Ala Ser Phe Val Ile Asn Val Asp Thr
 145 150 155 160
 Ile Glu Tyr Met Lys Gln Cys Val Met Glu Glu Cys Asn Asp Phe Cys
 165 170 175
 Ser Ser Phe Glu Val Val Ala Ala Leu Val Trp Ile Ala Arg Thr Lys
 180 185 190
 Ala Leu Gln Ile Pro His Thr Glu Asn Val Lys Leu Leu Phe Ala Met
 195 200 205
 Asp Leu Arg Lys Leu Phe Asn Pro Pro Leu Pro Asn Gly Tyr Tyr Gly
 210 215 220
 Asn Ala Ile Gly Thr Ala Tyr Ala Met Asp Asn Val Gln Asp Leu Leu
 225 230 235 240
 Asn Gly Ser Leu Leu Arg Ala Ile Met Ile Ile Lys Lys Ala Lys Ala
 245 250 255
 Asp Leu Lys Asp Asn Tyr Ser Arg Ser Arg Val Val Thr Asn Pro Asn
 260 265 270
 Ser Leu Asp Val Asn Lys Lys Ser Asn Asn Ile Leu Ala Leu Ser Asp
 275 280 285
 Trp Arg Arg Leu Gly Phe Tyr Glu Ala Asp Phe Gly Trp Gly Lys
 290 295 300

<210> 21
 <211> 911
 <212> DNA
 <213> *Taxus cuspidata*

<400> 21
 tactaccgc tggcaggacg gctcagaagt aaagaaattg gggaacttga agtggagtgc 60
 acaggggatg gtgctctgtt tgtggaagcc atggtggaag acaccatttc agtcttacga 120
 gatctggatg acctcaatcc atcatttcag cagtttagttt tttggcatcc attggacact 180
 gctattgagg atcttcatct tgtgattgtt caggtaacac gttttacatg tgggggcatt 240
 gccgttggag tgactttgcc ccatagtgtg tgtgatggac gtggagcacc ccagtttgtt 300
 acagcactgg cagaaatggc gaggggagag gttaagccct tattagaacc aatatggaat 360
 agagaattgt tgaaccctga agaccctcta catctccagt taaatcaatt tgattcgata 420
 tgcccacctc caatgctcga ggaattgggt caagcttctt ttgttataaa tgttgacacc 480

atagaatata tgaacaatg tggtatggag gaatgtaatg atttttgttc gtcctttgaa 540
 gtagtggcag cattggtttg gatagcaagg acaaaggctc ttcaaattcc acatactgag 600
 aatgtgaagc ttctctttgc gatggatttg aggaaattat ttaatccccc acttccaaat 660
 ggatattatg gtaatgccat tggtactgca tatgcaatgg ataatgtcca agacctctta 720
 aatggatctc ttttgcgtgc tataatgatt ataaaaaaag caaaggctga tttaaaagat 780
 aattattcga ggtcaagggt agttacaaac ccaaattcat tagatgtgaa caagaaatcc 840
 aacaacattc ttgcattgag tgactggagg cggttgggat tttatgaagc cgattttggc 900
 tggggcaagc c 911

<210> 22

<211> 306

<212> PRT

<213> Taxus cuspidata

<400> 22

Tyr Tyr Pro Leu Ala Gly Arg Leu Glu Thr Cys Asp Gly Met Val Tyr
 1 5 10 15

Ile Asp Cys Asn Asp Lys Gly Ala Glu Phe Ile Glu Ala Tyr Ala Ser
 20 25 30

Pro Glu Leu Gly Val Ala Glu Ile Met Ala Asp Ser Phe Pro His Gln
 35 40 45

Ile Phe Ala Phe Asn Gly Val Leu Asn Ile Asp Gly His Phe Met Pro
 50 55 60

Leu Leu Ala Val Gln Ala Thr Lys Leu Lys Asp Gly Ile Ala Leu Ala
 65 70 75 80

Ile Thr Val Asn His Ala Val Ala Asp Ala Thr Ser Val Trp His Phe
 85 90 95

Ile Ser Ser Trp Ala Gln Leu Cys Lys Glu Pro Ser Asn Ile Pro Leu
 100 105 110

Leu Pro Leu His Thr Arg Cys Phe Thr Thr Ile Ser Pro Ile Lys Leu
 115 120 125

Asp Ile Gln Tyr Ser Ser Thr Thr Thr Glu Ser Ile Asp Asn Phe Phe
 130 135 140

Pro Pro Pro Leu Thr Glu Lys Ile Phe His Phe Ser Gly Lys Thr Ile
 145 150 155 160

Ser Arg Leu Lys Glu Glu Ala Met Glu Ala Cys Lys Asp Lys Ser Ile
 165 170 175

Ser Ile Ser Ser Phe Gln Ala Leu Cys Gly His Leu Trp Gln Ser Ile
 180 185 190

Thr Arg Ala Arg Gly Leu Ser Pro Ser Glu Pro Thr Thr Ile Lys Ile
 195 200 205

Ala Val Asn Cys Arg Pro Arg Ile Val Pro Pro Leu Pro Asn Ser Tyr
 210 215 220

Phe Gly Asn Ala Val Gln Val Val Asp Val Thr Met Thr Thr Glu Glu
 225 230 235 240

Leu Leu Gly Asn Gly Gly Ala Cys Ala Ala Leu Ile Leu His Gln Lys

245 250 255

Ile Ser Ala His Gln Asp Thr Gln Ile Arg Ala Glu Leu Asp Lys Pro
 260 265 270

Pro Lys Ile Val His Thr Asn Asn Leu Ile Pro Cys Asn Ile Ile Ala
 275 280 285

Met Ala Gly Ser Pro Arg Phe Pro Ile Tyr Asn Asn Asp Phe Gly Trp
 290 295 300

Gly Lys
 305

<210> 23
 <211> 908
 <212> DNA
 <213> Taxus cuspidata

<400> 23

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gatttggatg	cccaaaatgc	atcttatgag	cagttgctct	tttcgcttcc	gcccaataca	180
caggttcagg	acctccatcc	tctgattctt	caggtaactc	gttttaaagt	tggagggtttt	240
gttgtgggag	ttggtttcca	ccatagtata	tgtgacgcac	gaggaggaac	tcaatttctt	300
ctaggcctag	cagatatggc	aaggggagag	actaagcctt	tagtggaacc	agtatggaat	360
agagaactga	taaaccctga	agatctaagt	cacctccaat	ttcataagtt	tggtttgata	420
cgccaacctc	taaaacttga	tgaaatttgt	caagcatctt	ttactataaa	ctcaaagata	480
ataaattaca	tcaaacaatg	tgttatagaa	gaatgtaatg	aaattttctc	tgcatttgaa	540
gttgtagtag	cattaacttg	gatagcaagg	acaaaggctt	ttcaaattcc	acatagtgag	600
aatgtgatga	tgctcttttg	aatggacgcg	aggaaatatt	ttaatcccc	acttccaaag	660
ggatattatg	gtaatgccat	tggtacttca	tgtgtaattg	aaaatgtaca	agacctctta	720
aatggatctc	tttcgcgtgc	tgtaatgata	acaaagaaat	caaagggtccc	tttaattgag	780
aatttaaggt	caagaattgt	ggcgaaccaa	tctggagtag	atgaggaaat	taagcatgaa	840
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ggcaagcc						908

<210> 24
 <211> 302
 <212> PRT
 <213> Taxus cuspidata

<400> 24

Phe	Tyr	Pro	Phe	Ala	Gly	Arg	Ile	Arg	Gln	Lys	Glu	Asn	Glu	Glu	Leu
1				5					10					15	
Glu	Val	Glu	Cys	Thr	Gly	Glu	Gly	Ala	Leu	Phe	Val	Glu	Ala	Val	Val
			20					25						30	
Asp	Asn	Asp	Leu	Ser	Val	Leu	Lys	Asp	Leu	Asp	Ala	Gln	Asn	Ala	Ser
			35				40						45		
Tyr	Glu	Gln	Leu	Leu	Phe	Ser	Leu	Pro	Pro	Asn	Thr	Gln	Val	Gln	Asp
	50					55					60				
Leu	His	Pro	Leu	Ile	Leu	Gln	Val	Thr	Arg	Phe	Lys	Cys	Gly	Gly	Phe
65					70					75					80
Val	Val	Gly	Val	Gly	Phe	His	His	Ser	Ile	Cys	Asp	Ala	Arg	Gly	Gly
					85				90					95	

Thr Gln Phe Leu Leu Gly Leu Ala Asp Met Ala Arg Gly Glu Thr Lys
 100 105 110
 Pro Leu Val Glu Pro Val Trp Asn Arg Glu Leu Ile Asn Pro Glu Asp
 115 120 125
 Leu Met His Leu Gln Phe His Lys Phe Gly Leu Ile Arg Gln Pro Leu
 130 135 140
 Lys Leu Asp Glu Ile Cys Gln Ala Ser Phe Thr Ile Asn Ser Lys Ile
 145 150 155 160
 Ile Asn Tyr Ile Lys Gln Cys Val Ile Glu Glu Cys Asn Glu Ile Phe
 165 170 175
 Ser Ala Phe Glu Val Val Val Ala Leu Thr Trp Ile Ala Arg Thr Lys
 180 185 190
 Ala Phe Gln Ile Pro His Ser Glu Asn Val Met Met Leu Phe Gly Met
 195 200 205
 Asp Ala Arg Lys Tyr Phe Asn Pro Pro Leu Pro Lys Gly Tyr Tyr Gly
 210 215 220
 Asn Ala Ile Gly Thr Ser Cys Val Ile Glu Asn Val Gln Asp Leu Leu
 225 230 235 240
 Asn Gly Ser Leu Ser Arg Ala Val Met Ile Thr Lys Lys Ser Lys Val
 245 250 255
 Pro Leu Ile Glu Asn Leu Arg Ser Arg Ile Val Ala Asn Gln Ser Gly
 260 265 270
 Val Asp Glu Glu Ile Lys His Glu Asn Val Val Gly Phe Gly Asp Trp
 275 280 285
 Arg Arg Leu Gly Phe His Glu Val Asp Phe Gly Trp Gly Lys
 290 295 300

<210> 25

<211> 1320

<212> DNA

<213> *Taxus cuspidata*

<400> 25

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 ttatcagtct acaatgcctc ccagagagtt tctgtttctg cagatcctgc aaaaacaatt 180
 cgagaggctc tctccaaggt gctggtttat tatccccctt ttgctggaag gctgagaaac 240
 acagaaaatg gggatcttga agtggagtgc acaggggagg gtgccgtctt tgtggaagcc 300
 atggcggaca acgacctttc agtattacaa gatttcaatg agtacgatcc atcatttcag 360
 cagctagttt ttaatcttcg agaggatgtc aatattgagg acctccatct tctaactgtt 420
 caggtaactc gttttacatg tggaggattt gttgtgggca caagattcca ccatagtgtg 480
 tctgatggaa aaggaatcgg ccagttactt aaaggcatgg gagagatggc aaggggggag 540
 tttaagccct cgtagaacc aatatggaat agagaaatgg tgaagcctga agacattatg 600
 tacctccagt ttgatcactt tgatttcata caccacctc ttaatcttga gaagtctatt 660
 caagcatcta tggtaataag ctttgagaga ataaattata tcaaacgatg catgatggaa 720
 gaatgcaaag aatttttttc tgcatttgaa gttgtagtag cattgatttg gctggcaagg 780
 acaaagtctt ttcgaattcc acccaatgag tatgtgaaaa ttatctttcc aatcgacatg 840

aggaattcat ttgactcccc tcttccaaag ggatactatg gtaatgctat tggtaatgca 900
 tgtgcaatgg ataatgtcaa agacctctta aatggatctc ttttatatgc tctaattgctt 960
 ataaagaaat caaagtttgc tttaaatgag aattttcaaat caagaatctt gacaaaacca 1020
 tctacattag atgcgaatat gaagcatgaa aatgtagtcg gatgtggcga ttggaggaat 1080
 ttgggatttt atgaagcaga ttttggatgg ggaaatgcag tgaatgtaag ccccatgcag 1140
 caacaaagag agcatgaatt agctatgcaa aattattttc tttttctccg atcagctaag 1200
 aacatgattg atggaatcaa gataactaatg ttcatgcctg catcaatggt gaaaccattc 1260
 aaaattgaaa tggaagtcac aataaacaata tatgtggcta aaatatgtaa ctctaagtta 1320

<210> 26

<211> 440

<212> PRT

<213> Taxus cuspidata

<400> 26

Met	Gly	Arg	Phe	Asn	Val	Asp	Met	Ile	Glu	Arg	Val	Ile	Val	Ala	Pro	1	5	10	15
Cys	Leu	Gln	Ser	Pro	Lys	Asn	Ile	Leu	His	Leu	Ser	Pro	Ile	Asp	Asn	20	25	30	
Lys	Thr	Arg	Gly	Leu	Thr	Asn	Ile	Leu	Ser	Val	Tyr	Asn	Ala	Ser	Gln	35	40	45	
Arg	Val	Ser	Val	Ser	Ala	Asp	Pro	Ala	Lys	Thr	Ile	Arg	Glu	Ala	Leu	50	55	60	
Ser	Lys	Val	Leu	Val	Tyr	Tyr	Pro	Pro	Phe	Ala	Gly	Arg	Leu	Arg	Asn	65	70	75	80
Thr	Glu	Asn	Gly	Asp	Leu	Glu	Val	Glu	Cys	Thr	Gly	Glu	Gly	Ala	Val	85	90	95	
Phe	Val	Glu	Ala	Met	Ala	Asp	Asn	Asp	Leu	Ser	Val	Leu	Gln	Asp	Phe	100	105	110	
Asn	Glu	Tyr	Asp	Pro	Ser	Phe	Gln	Gln	Leu	Val	Phe	Asn	Leu	Arg	Glu	115	120	125	
Asp	Val	Asn	Ile	Glu	Asp	Leu	His	Leu	Leu	Thr	Val	Gln	Val	Thr	Arg	130	135	140	
Phe	Thr	Cys	Gly	Gly	Phe	Val	Val	Gly	Thr	Arg	Phe	His	His	Ser	Val	145	150	155	160
Ser	Asp	Gly	Lys	Gly	Ile	Gly	Gln	Leu	Leu	Lys	Gly	Met	Gly	Glu	Met	165	170	175	
Ala	Arg	Gly	Glu	Phe	Lys	Pro	Ser	Leu	Glu	Pro	Ile	Trp	Asn	Arg	Glu	180	185	190	
Met	Val	Lys	Pro	Glu	Asp	Ile	Met	Tyr	Leu	Gln	Phe	Asp	His	Phe	Asp	195	200	205	
Phe	Ile	His	Pro	Pro	Leu	Asn	Leu	Glu	Lys	Ser	Ile	Gln	Ala	Ser	Met	210	215	220	
Val	Ile	Ser	Phe	Glu	Arg	Ile	Asn	Tyr	Ile	Lys	Arg	Cys	Met	Met	Glu	225	230	235	240
Glu	Cys	Lys	Glu	Phe	Phe	Ser	Ala	Phe	Glu	Val	Val	Val	Ala	Leu	Ile				

245								250				255			
Trp	Leu	Ala	Arg	Thr	Lys	Ser	Phe	Arg	Ile	Pro	Pro	Asn	Glu	Tyr	Val
		260						265				270			
Lys	Ile	Ile	Phe	Pro	Ile	Asp	Met	Arg	Asn	Ser	Phe	Asp	Ser	Pro	Leu
	275					280						285			
Pro	Lys	Gly	Tyr	Tyr	Gly	Asn	Ala	Ile	Gly	Asn	Ala	Cys	Ala	Met	Asp
	290					295					300				
Asn	Val	Lys	Asp	Leu	Leu	Asn	Gly	Ser	Leu	Leu	Tyr	Ala	Leu	Met	Leu
305				310					315						320
Ile	Lys	Lys	Ser	Lys	Phe	Ala	Leu	Asn	Glu	Asn	Phe	Lys	Ser	Arg	Ile
			325					330						335	
Leu	Thr	Lys	Pro	Ser	Thr	Leu	Asp	Ala	Asn	Met	Lys	His	Glu	Asn	Val
			340					345					350		
Val	Gly	Cys	Gly	Asp	Trp	Arg	Asn	Leu	Gly	Phe	Tyr	Glu	Ala	Asp	Phe
		355					360					365			
Gly	Trp	Gly	Asn	Ala	Val	Asn	Val	Ser	Pro	Met	Gln	Gln	Gln	Arg	Glu
	370					375					380				
His	Glu	Leu	Ala	Met	Gln	Asn	Tyr	Phe	Leu	Phe	Leu	Arg	Ser	Ala	Lys
385					390					395					400
Asn	Met	Ile	Asp	Gly	Ile	Lys	Ile	Leu	Met	Phe	Met	Pro	Ala	Ser	Met
				405					410					415	
Val	Lys	Pro	Phe	Lys	Ile	Glu	Met	Glu	Val	Thr	Ile	Asn	Lys	Tyr	Val
			420					425					430		
Ala	Lys	Ile	Cys	Asn	Ser	Lys	Leu								
		435					440								

<210> 27
 <211> 1317
 <212> DNA
 <213> Taxus cuspidata

<400> 27
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 agcatttttca atgccttggt aattttacaat gcctctccct ctcccaccat gatctctgca 180
 gatcctgcaa aaccaattag agaagctctc gccaaagatcc tggttttatta tccccctttt 240
 gctgggcgcc tcagagagac agaaaatggg gatctggaag tggaatgcac aggggagggg 300
 gctatgtttt tggaagccat ggcagacaat gagctgtctg tgttgaggaga ttttgatgac 360
 agcaatccat catttcagca gctacttttt tcgcttcac tcgataccaa tttcaaagac 420
 ctctctcttc tggttgttca ggtaactcgt ttacatgtg gaggctttgt tgttgagtg 480
 agtttccacc atggtgtatg tgatgggtcga ggagcggccc aatttcttaa aggtttggca 540
 gagatggcac ggggagaggt taagctctca ttggaaccaa tatggaatag ggaactagt 600
 aagcttgatg accctaaata ccttcaattt tttcactttg aattcctacg agcgccttca 660
 attgttgaga aaattgttca aacatatttt attatagatt ttgagaccat aaattatata 720
 aaacaatctg ttatggaaga atgtaaagaa ttttgctctt cattcgaagt tgcacagca 780
 atgacttgga tagcaaggac aagagctttt caaattccag aaagtgagta cgtgaaaatt 840
 ctcttcggaa tggacatgag gaactcattt aatccccctc ttccaagcgg atactatgg 900
 aactccattg gtaccgcatg tgcagtggat aatgttcaag acctcttaag tggatctctt 960

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tttgctgatt ggagccgatt gggatttgat gaagtggatt ttggttgggg gaatgcggtg 1140
agtgtaaagcc ctgtgcaaca acagtctgcg ttagcaatgc aaaattattt tcttttccta 1200
aaaccttcca agaacaagcc cgatggaatc aaaatattaa tgtttctgcc cctatcaaaa 1260
atgaagtcac tcaaaattga aatggaagcc atgatgaaaa aatatgtggc taaagta 1317

```

<210> 28

<211> 439

<212> PRT

<213> Artificial Sequence

<400> 28

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Met Glu Lys Thr Asp Leu His Val Asn Leu Ile Glu Lys Val Met Val
  1              5              10              15

```

```

Gly Pro Ser Pro Pro Leu Pro Lys Thr Thr Leu Gln Leu Ser Ser Ile
              20              25              30

```

```

Asp Asn Leu Pro Gly Val Arg Gly Ser Ile Phe Asn Ala Leu Leu Ile
              35              40              45

```

```

Tyr Asn Ala Ser Pro Ser Pro Thr Met Ile Ser Ala Asp Pro Ala Lys
              50              55              60

```

```

Pro Ile Arg Glu Ala Leu Ala Lys Ile Leu Val Tyr Tyr Pro Pro Phe
              65              70              75              80

```

```

Ala Gly Arg Leu Arg Glu Thr Glu Asn Gly Asp Leu Glu Val Glu Cys
              85              90              95

```

```

Thr Gly Glu Gly Ala Met Phe Leu Glu Ala Met Ala Asp Asn Glu Leu
              100              105              110

```

```

Ser Val Leu Gly Asp Phe Asp Asp Ser Asn Pro Ser Phe Gln Gln Leu
              115              120              125

```

```

Leu Phe Ser Leu Pro Leu Asp Thr Asn Phe Lys Asp Leu Ser Leu Leu
              130              135              140

```

```

Val Val Gln Val Thr Arg Phe Thr Cys Gly Gly Phe Val Val Gly Val
              145              150              155              160

```

```

Ser Phe His His Gly Val Cys Asp Gly Arg Gly Ala Ala Gln Phe Leu
              165              170              175

```

```

Lys Gly Leu Ala Glu Met Ala Arg Gly Glu Val Lys Leu Ser Leu Glu
              180              185              190

```

```

Pro Ile Trp Asn Arg Glu Leu Val Lys Leu Asp Asp Pro Lys Tyr Leu
              195              200              205

```

```

Gln Phe Phe His Phe Glu Phe Leu Arg Ala Pro Ser Ile Val Glu Lys
              210              215              220

```

```

Ile Val Gln Thr Tyr Phe Ile Ile Asp Phe Glu Thr Ile Asn Tyr Ile
              225              230              235              240

```

```

Lys Gln Ser Val Met Glu Glu Cys Lys Glu Phe Cys Ser Ser Phe Glu
              245              250              255

```

Val	Ala	Ser	Ala	Met	Thr	Trp	Ile	Ala	Arg	Thr	Arg	Ala	Phe	Gln	Ile	260	265	270
Pro	Glu	Ser	Glu	Tyr	Val	Lys	Ile	Leu	Phe	Gly	Met	Asp	Met	Arg	Asn	275	280	285
Ser	Phe	Asn	Pro	Pro	Leu	Pro	Ser	Gly	Tyr	Tyr	Gly	Asn	Ser	Ile	Gly	290	295	300
Thr	Ala	Cys	Ala	Val	Asp	Asn	Val	Gln	Asp	Leu	Leu	Ser	Gly	Ser	Leu	305	310	315
Leu	Arg	Ala	Ile	Met	Ile	Ile	Lys	Lys	Ser	Lys	Val	Ser	Leu	Asn	Asp	325	330	335
Asn	Phe	Lys	Ser	Arg	Ala	Val	Val	Lys	Pro	Ser	Glu	Leu	Asp	Val	Asn	340	345	350
Met	Asn	His	Glu	Asn	Val	Val	Ala	Phe	Ala	Asp	Trp	Ser	Arg	Leu	Gly	355	360	365
Phe	Asp	Glu	Val	Asp	Phe	Gly	Trp	Gly	Asn	Ala	Val	Ser	Val	Ser	Pro	370	375	380
Val	Gln	Gln	Gln	Ser	Ala	Leu	Ala	Met	Gln	Asn	Tyr	Phe	Leu	Phe	Leu	385	390	395
Lys	Pro	Ser	Lys	Asn	Lys	Pro	Asp	Gly	Ile	Lys	Ile	Leu	Met	Phe	Leu	405	410	415
Pro	Leu	Ser	Lys	Met	Lys	Ser	Phe	Lys	Ile	Glu	Met	Glu	Ala	Met	Met	420	425	430
Lys	Lys	Tyr	Val	Ala	Lys	Val										435		

<210> 29

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:proteolytic fragment

<400> 29

Thr	Thr	Leu	Gln	Leu	Ser	Ser	Ile	Asp	Asn	Leu	Pro	Gly	Val	Arg
1				5					10					15

<210> 30

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:proteolytic fragment

<400> 30

Ile Leu Val Tyr Tyr Pro Pro Phe Ala Gly Arg
1 5 10

<210> 31
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:proteolytic
fragment

<400> 31
Phe Thr Cys Gly Gly Phe Val Val Gly Val Ser Phe
1 5 10

<210> 32
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:proteolytic
fragment

<400> 32
Lys Gly Leu Ala Glu Ile Ala Arg Gly Glu Val Lys
1 5 10

<210> 33
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:proteolytic
fragment

<400> 33
Asn Leu Pro Asn Asp Thr Asn Pro Ser Ser Gly Tyr Tyr Gly Asn
1 5 10 15

<210> 34
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 34
atnctngtnt attatccncc

20

<210> 35
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 35
 tattatccnc cntttgcngg 20

 <210> 36
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 36
 ttctatccnt tcgcnngnag 20

 <210> 37
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 37
 tactatccnt tngcnngnag 20

 <210> 38
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 38
 ctaaaaccna ccccntttgg 20

 <210> 39
 <211> 7
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:consensus
 sequence

 <400> 39
 Phe Tyr Pro Phe Ala Gly Arg
 1 5

 <210> 40
 <211> 7
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:consensus

sequence

<400> 40

Tyr Tyr Pro Leu Ala Gly Arg
1 5

<210> 41

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:consensus
sequence

<400> 41

Asp Phe Gly Trp Gly Lys Pro
1 5

<210> 42

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR primer

<400> 42

cctcatcttt ccccattga taat

24

<210> 43

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR primer

<400> 43

aaaaagaaaa taattttgcc atgcaag

27

<210> 44

<211> 1320

<212> DNA

<213> Taxus cuspidata

<400> 44

atggcaggct	caacagaatt	tgtggtaaga	agcttagaga	gagtgatggt	ggctccaagc	60
cagccatcgc	ccaaagcttt	cctgcagctc	tccacccttg	acaatctacc	aggggtgaga	120
gaaaacattt	ttaacacctt	gttagtctac	aatgcctcag	acagagtttc	cgtagatcct	180
gcaaaagtaa	ttcggcaggc	tctctccaag	gtgttggtgt	actattcccc	ttttgcaggg	240
cgtctcagga	aaaaagaaaa	tggagatctt	gaagtggagt	gcacagggga	gggtgctctg	300
tttgtggaag	ccatggctga	cactgacctc	tcagtcttag	gagatttgga	tgactacagt	360
ccttcacttg	agcaactact	tttttgtctt	ccgcctgata	cagatattga	ggacatccat	420
cctctggtgg	ttcaggtaac	tcgttttaca	tgtggagggt	ttgtttgtagg	ggtgagtttc	480
tgccatggta	tatgtgatgg	actaggagca	ggccagtttc	ttatagccat	gggagagatg	540
gcaaggggag	agattaagcc	ctcctcggag	ccaatatgga	agagagaatt	gctgaagccg	600
gaagaccctt	tataccgggt	ccagtattat	cactttcaat	tgatttgccc	gccttcaaca	660
ttcgggaaaa	tagttcaagg	atctcttggt	ataacctctg	agacaataaa	ttgtatcaaa	720

caatgcctta gggaagaaag taaagaattt tgctctgcgt tcgaagttgt atctgcattg 780
 gcttggatag caaggacaag ggctcttcaa attccacata gtgagaatgt gaagcttatt 840
 tttgcaatgg acatgagaaa attatttaaat ccaccacttt cgaagggata ctacggtaat 900
 tttgttggtta ccgtatgtgc aatggataat gtcaaggacc tattaagtgg atctcttttg 960
 cgtgttgtaa ggattataaa gaaagcaaag gtctctttaa atgagcattt cacgtcaaca 1020
 atcgtgacac cccgttctgg atcagatgag agtatcaatt atgaaaacat agttggattt 1080
 ggtgatcgaa ggcgattggg atttgatgaa gtagactttg ggtgggggca tgcagataat 1140
 gtaagtctcg tgcaacatgg attgaaggat gtttcagtcg tgcaaagtta ttttcttttc 1200
 atacgacctc ccaagaataa ccccgatgga atcaagatcc tatcgttcat gccccgtca 1260
 atagtgaat ccttcaaatt tgaaatggaa accatgacaa acaaatatgt aactaagcct 1320

<210> 45

<211> 440

<212> PRT

<213> *Taxus cuspidata*

<400> 45

Met Ala Gly Ser Thr Glu Phe Val Val Arg Ser Leu Glu Arg Val Met
 1 5 10 15

Val Ala Pro Ser Gln Pro Ser Pro Lys Ala Phe Leu Gln Leu Ser Thr
 20 25 30

Leu Asp Asn Leu Pro Gly Val Arg Glu Asn Ile Phe Asn Thr Leu Leu
 35 40 45

Val Tyr Asn Ala Ser Asp Arg Val Ser Val Asp Pro Ala Lys Val Ile
 50 55 60

Arg Gln Ala Leu Ser Lys Val Leu Val Tyr Tyr Ser Pro Phe Ala Gly
 65 70 75 80

Arg Leu Arg Lys Lys Glu Asn Gly Asp Leu Glu Val Glu Cys Thr Gly
 85 90 95

Glu Gly Ala Leu Phe Val Glu Ala Met Ala Asp Thr Asp Leu Ser Val
 100 105 110

Leu Gly Asp Leu Asp Asp Tyr Ser Pro Ser Leu Glu Gln Leu Leu Phe
 115 120 125

Cys Leu Pro Pro Asp Thr Asp Ile Glu Asp Ile His Pro Leu Val Val
 130 135 140

Gln Val Thr Arg Phe Thr Cys Gly Gly Phe Val Val Gly Val Ser Phe
 145 150 155 160

Cys His Gly Ile Cys Asp Gly Leu Gly Ala Gly Gln Phe Leu Ile Ala
 165 170 175

Met Gly Glu Met Ala Arg Gly Glu Ile Lys Pro Ser Ser Glu Pro Ile
 180 185 190

Trp Lys Arg Glu Leu Leu Lys Pro Glu Asp Pro Leu Tyr Arg Phe Gln
 195 200 205

Tyr Tyr His Phe Gln Leu Ile Cys Pro Pro Ser Thr Phe Gly Lys Ile
 210 215 220

Val Gln Gly Ser Leu Val Ile Thr Ser Glu Thr Ile Asn Cys Ile Lys
 225 230 235 240

Gln	Cys	Leu	Arg	Glu	Glu	Ser	Lys	Glu	Phe	Cys	Ser	Ala	Phe	Glu	Val			
				245					250					255				
Val	Ser	Ala	Leu	Ala	Trp	Ile	Ala	Arg	Thr	Arg	Ala	Leu	Gln	Ile	Pro			
			260					265					270					
His	Ser	Glu	Asn	Val	Lys	Leu	Ile	Phe	Ala	Met	Asp	Met	Arg	Lys	Leu			
		275					280					285						
Phe	Asn	Pro	Pro	Leu	Ser	Lys	Gly	Tyr	Tyr	Gly	Asn	Phe	Val	Gly	Thr			
	290					295					300							
Val	Cys	Ala	Met	Asp	Asn	Val	Lys	Asp	Leu	Leu	Ser	Gly	Ser	Leu	Leu			
305					310					315					320			
Arg	Val	Val	Arg	Ile	Ile	Lys	Lys	Ala	Lys	Val	Ser	Leu	Asn	Glu	His			
				325					330					335				
Phe	Thr	Ser	Thr	Ile	Val	Thr	Pro	Arg	Ser	Gly	Ser	Asp	Glu	Ser	Ile			
			340					345					350					
Asn	Tyr	Glu	Asn	Ile	Val	Gly	Phe	Gly	Asp	Arg	Arg	Arg	Leu	Gly	Phe			
		355					360					365						
Asp	Glu	Val	Asp	Phe	Gly	Trp	Gly	His	Ala	Asp	Asn	Val	Ser	Leu	Val			
	370					375					380							
Gln	His	Gly	Leu	Lys	Asp	Val	Ser	Val	Val	Gln	Ser	Tyr	Phe	Leu	Phe			
385					390					395					400			
Ile	Arg	Pro	Pro	Lys	Asn	Asn	Pro	Asp	Gly	Ile	Lys	Ile	Leu	Ser	Phe			
				405					410					415				
Met	Pro	Pro	Ser	Ile	Val	Lys	Ser	Phe	Lys	Phe	Glu	Met	Glu	Thr	Met			
			420					425					430					
Thr	Asn	Lys	Tyr	Val	Thr	Lys	Pro											
		435					440											

<210> 46

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer

<400> 46

gggaattcca tatggcaggc tcaacagaat ttgtgg

36

<210> 47

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer

<400> 47

gtttatacat tgattcggaa ctagatctga tc

32

<210> 48

<211> 6 ..

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: 6 amino acid
motif found in acyl transferases

<220>

<221> VARIANT

<222> (2)..(4)

<223> Any amino acid

<400> 48

His Xaa Xaa Xaa Asp Gly
1 5

<210> 49

<211> 1332

<212> DNA

<213> Taxus cuspidata

<400> 49

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ggatttgcca acgtattgct agtcttcggg gccctccatg gcgtttctgc agatcctgca 180
aaaacaattc gagaggctct ctccaagacc ttggtctttt atttcccttt tgctggggcg 240
ctcagaaaga aagaagatgg ggatatcgaa gtggagtgc tagagcaggg agctctgttc 300
gtggaagcca tggcggacaa cgatctttca gtcgtacgag atctggatga gtacaatcca 360
ttatttcggc agctacaatc ttgcgtttca ctggatacag attacaagga cctccatctt 420
atgactgttc aggtaactcc gtttacatgt ggggggtttg tcatgggaac gagtgtacac 480
caaagtatat gcgatggaaa tggattgggg caatttttta aaagcatggc agagatagtg 540
aggggagaag ttaagccctc aatcgaacca atatggaata gagaattggg gaagcctgaa 600
gactatatac acctccagtt gtatgtcagt gaattcattc gccaccttt agtagttgag 660
aaagttgggc aaacatctct tgttataagc ttcgagaaaa taaatcatat caaacgatgc 720
attatggaag aaagtaaaga atctttctct tcatttgaaa ttgtaacagc aatgggtttg 780
ctagcaagga caagggtctt tcaaattcca cacaacgagg atgtgactct tctccttgca 840
atggatgcaa ggagatcatt tgacccccc attccgaagg gatactacgg taatgtcatt 900
ggtactacat atgcaaaaaga taatgtccac aacctcttaa gtggatctct tttgcatgct 960
ctaacagtta taaagaaatc aatgtcctca ttttatgaga atatgacctc aagagtcttg 1020
gtgaacccat ctacattaga tttgagtatg aagtatgaaa atgtagtttc acttagtgat 1080
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actctgcaac aacaatggga aaatgaggta gctataccaa ctttttttac tttccttcaa 1200
actcccaaga atataccaga tggaatcaag atactaatgt tcatgcccc atcaagagag 1260
aaaacattcg aaattgaagt ggaagccatg ataagaaaat atttgactaa agtgtcgcat 1320
tcaaagctat aa 1332
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<210> 50

<211> 443

<212> PRT

<213> Taxus cuspidata

<400> 50

Met Glu Lys Ser Gly Ser Ala Asp Leu His Val Asn Ile Ile Glu Arg
1 5 10 15

Val Val Val Ala Pro Cys Gln Pro Thr Pro Lys Thr Ile Leu Gln Leu

20					25					30						
Ser	Ser	Ile	Asp	Lys	Met	Gly	Gly	Gly	Phe	Ala	Asn	Val	Leu	Leu	Val	
35					40					45						
Phe	Gly	Ala	Ser	His	Gly	Val	Ser	Ala	Asp	Pro	Ala	Lys	Thr	Ile	Arg	
50					55					60						
Glu	Ala	Leu	Ser	Lys	Thr	Leu	Val	Phe	Tyr	Phe	Pro	Phe	Ala	Gly	Arg	
65					70					75					80	
Leu	Arg	Lys	Lys	Glu	Asp	Gly	Asp	Ile	Glu	Val	Glu	Cys	Ile	Glu	Gln	
85					90					95						
Gly	Ala	Leu	Phe	Val	Glu	Ala	Met	Ala	Asp	Asn	Asp	Leu	Ser	Val	Val	
100					105					110						
Arg	Asp	Leu	Asp	Glu	Tyr	Asn	Pro	Leu	Phe	Arg	Gln	Leu	Gln	Ser	Ser	
115					120					125						
Leu	Ser	Leu	Asp	Thr	Asp	Tyr	Lys	Asp	Leu	His	Leu	Met	Thr	Val	Gln	
130					135					140						
Val	Thr	Pro	Phe	Thr	Cys	Gly	Gly	Phe	Val	Met	Gly	Thr	Ser	Val	His	
145					150					155					160	
Gln	Ser	Ile	Cys	Asp	Gly	Asn	Gly	Leu	Gly	Gln	Phe	Phe	Lys	Ser	Met	
165					170					175						
Ala	Glu	Ile	Val	Arg	Gly	Glu	Val	Lys	Pro	Ser	Ile	Glu	Pro	Ile	Trp	
180					185					190						
Asn	Arg	Glu	Leu	Val	Lys	Pro	Glu	Asp	Tyr	Ile	His	Leu	Gln	Leu	Tyr	
195					200					205						
Val	Ser	Glu	Phe	Ile	Arg	Pro	Pro	Leu	Val	Val	Glu	Lys	Val	Gly	Gln	
210					215					220						
Thr	Ser	Leu	Val	Ile	Ser	Phe	Glu	Lys	Ile	Asn	His	Ile	Lys	Arg	Cys	
225					230					235					240	
Ile	Met	Glu	Glu	Ser	Lys	Glu	Ser	Phe	Ser	Ser	Phe	Glu	Ile	Val	Thr	
245					250					255						
Ala	Met	Val	Trp	Leu	Ala	Arg	Thr	Arg	Ala	Phe	Gln	Ile	Pro	His	Asn	
260					265					270						
Glu	Asp	Val	Thr	Leu	Leu	Leu	Ala	Met	Asp	Ala	Arg	Arg	Ser	Phe	Asp	
275					280					285						
Pro	Pro	Ile	Pro	Lys	Gly	Tyr	Tyr	Gly	Asn	Val	Ile	Gly	Thr	Thr	Tyr	
290					295					300						
Ala	Lys	Asp	Asn	Val	His	Asn	Leu	Leu	Ser	Gly	Ser	Leu	Leu	His	Ala	
305					310					315					320	
Leu	Thr	Val	Ile	Lys	Lys	Ser	Met	Ser	Ser	Phe	Tyr	Glu	Asn	Met	Thr	
325					330					335						
Ser	Arg	Val	Leu	Val	Asn	Pro	Ser	Thr	Leu	Asp	Leu	Ser	Met	Lys	Tyr	
340					345					350						

Glu Asn Val Val Ser Leu Ser Asp Trp Ser Arg Leu Gly His Asn Glu
355 360 365

Val Asp Phe Gly Trp Gly Asn Ala Ile Asn Val Ser Thr Leu Gln Gln
370 375 380

Gln Trp Glu Asn Glu Val Ala Ile Pro Thr Phe Phe Thr Phe Leu Gln
385 390 395 400

Thr Pro Lys Asn Ile Pro Asp Gly Ile Lys Ile Leu Met Phe Met Pro
405 410 415

Pro Ser Arg Glu Lys Thr Phe Glu Ile Glu Val Glu Ala Met Ile Arg
420 425 430

Lys Tyr Leu Thr Lys Val Ser His Ser Lys Leu
435 440

<210> 51
<211> 1338
<212> DNA
<213> Taxus cuspidata

<400> 51
atgaagaaga caggttcggt tgcagagttc catgtgaata tgattgagcg agtcatgggtg 60
agaccgtgcc tgccttcgcc caaaacaatc ctccctctct ccgccattga caacatggca 120
agagcttttt ctaacgtatt gctggtctac gctgccaca tggacagagt ctctgcagat 180
cctgcaaaag tgattcgaga ggctctctcc aaggtgctgg tttattatta cccttttgct 240
gggcggtcca gaaataaaga aaatggggaa cttgaagtgg agtgcacagg gcaggggtgtt 300
ctgtttcttg aagccatggc tgacagcgac ctttcagtct taacagatct ggataactac 360
aatccatcgt ttcagcagtt gattttttct ctaccacagg atacagatat tgaggacctc 420
catctcttga ttgttcaggt aactcgtttt acatgtgggg gttttgttgt gggagcgaat 480
gtgtatggta gtgcatgcga tgcaaaagga tttggccagt ttcttcaaag tatggcagag 540
atggcgagag gagagggtta gccctcgatt gaaccgatat ggaatagaga actggtgaag 600
ctagaacatt gtatgccctt ccggatgagt catcttcaaa ttatacatgc acctgtaatt 660
gaggagaaat ttgttcaaac atctcttggt ataaactttg agataataaa tcatatcaga 720
cgacgcacatc tggaagaacg caaagaaagt ttatcttcat ttgaaattgt agcagcattg 780
gtttggctag caaagataaa ggcttttcaa attccacata gtgagaatgt gaagcttctt 840
tttgcaatgg acttgaggag atcatttaat cccctcttc cacatggata ctatggcaat 900
gcctttggta ttgcatgtgc aatggataat gtccatgacc ttctaagtgg atctcttttg 960
cgcactataa tgatcataaa gaaatcaaag ttctctttac acaaagaact caactcaaaa 1020
accgtgatga gctcatctgt agtagatgtc aatacgaagt ttgaagatgt agtttcaatt 1080
agtgattgga ggcattctat atattatgaa gtggactttg ggtggggaga tgcaatgaac 1140
gtgagcacta tgctacaaca acaggagcac gagaaatctc tgccaactta tttttctttc 1200
ctacaatcta ctaagaacat gccagatgga atcaagatgc taatgtttat gcctccatca 1260
aaactgaaaa aattcaaaat tgaaatagaa gctatgataa aaaaatatgt gactaaagtg 1320
tgtccgtcaa agttatga 1338

<210> 52
<211> 445
<212> PRT
<213> Taxus cuspidata

<400> 52
Met Lys Lys Thr Gly Ser Phe Ala Glu Phe His Val Asn Met Ile Glu
1 5 10 15

Arg Val Met Val Arg Pro Cys Leu Pro Ser Pro Lys Thr Ile Leu Pro
20 25 30

Leu	Ser	Ala	Ile	Asp	Asn	Met	Ala	Arg	Ala	Phe	Ser	Asn	Val	Leu	Leu	35	40	45
Val	Tyr	Ala	Ala	Asn	Met	Asp	Arg	Val	Ser	Ala	Asp	Pro	Ala	Lys	Val	50	55	60
Ile	Arg	Glu	Ala	Leu	Ser	Lys	Val	Leu	Val	Tyr	Tyr	Tyr	Pro	Phe	Ala	65	70	75
Gly	Arg	Leu	Arg	Asn	Lys	Glu	Asn	Gly	Glu	Leu	Glu	Val	Glu	Cys	Thr	85	90	95
Gly	Gln	Gly	Val	Leu	Phe	Leu	Glu	Ala	Met	Ala	Asp	Ser	Asp	Leu	Ser	100	105	110
Val	Leu	Thr	Asp	Leu	Asp	Asn	Tyr	Asn	Pro	Ser	Phe	Gln	Gln	Leu	Ile	115	120	125
Phe	Ser	Leu	Pro	Gln	Asp	Thr	Asp	Ile	Glu	Asp	Leu	His	Leu	Leu	Ile	130	135	140
Val	Gln	Val	Thr	Arg	Phe	Thr	Cys	Gly	Gly	Phe	Val	Val	Gly	Ala	Asn	145	150	155
Val	Tyr	Gly	Ser	Ala	Cys	Asp	Ala	Lys	Gly	Phe	Gly	Gln	Phe	Leu	Gln	165	170	175
Ser	Met	Ala	Glu	Met	Ala	Arg	Gly	Glu	Val	Lys	Pro	Ser	Ile	Glu	Pro	180	185	190
Ile	Trp	Asn	Arg	Glu	Leu	Val	Lys	Leu	Glu	His	Cys	Met	Pro	Phe	Arg	195	200	205
Met	Ser	His	Leu	Gln	Ile	Ile	His	Ala	Pro	Val	Ile	Glu	Glu	Lys	Phe	210	215	220
Val	Gln	Thr	Ser	Leu	Val	Ile	Asn	Phe	Glu	Ile	Ile	Asn	His	Ile	Arg	225	230	235
Arg	Arg	Ile	Met	Glu	Glu	Arg	Lys	Glu	Ser	Leu	Ser	Ser	Phe	Glu	Ile	245	250	255
Val	Ala	Ala	Leu	Val	Trp	Leu	Ala	Lys	Ile	Lys	Ala	Phe	Gln	Ile	Pro	260	265	270
His	Ser	Glu	Asn	Val	Lys	Leu	Leu	Phe	Ala	Met	Asp	Leu	Arg	Arg	Ser	275	280	285
Phe	Asn	Pro	Pro	Leu	Pro	His	Gly	Tyr	Tyr	Gly	Asn	Ala	Phe	Gly	Ile	290	295	300
Ala	Cys	Ala	Met	Asp	Asn	Val	His	Asp	Leu	Leu	Ser	Gly	Ser	Leu	Leu	305	310	315
Arg	Thr	Ile	Met	Ile	Ile	Lys	Lys	Ser	Lys	Phe	Ser	Leu	His	Lys	Glu	325	330	335
Leu	Asn	Ser	Lys	Thr	Val	Met	Ser	Ser	Ser	Val	Val	Asp	Val	Asn	Thr	340	345	350

Lys Phe Glu Asp Val Val Ser Ile Ser Asp Trp Arg His Ser Ile Tyr
 355 360 365
 Tyr Glu Val Asp Phe Gly Trp Gly Asp Ala Met Asn Val Ser Thr Met
 370 375 380
 Leu Gln Gln Gln Glu His Glu Lys Ser Leu Pro Thr Tyr Phe Ser Phe
 385 390 395 400
 Leu Gln Ser Thr Lys Asn Met Pro Asp Gly Ile Lys Met Leu Met Phe
 405 410 415
 Met Pro Pro Ser Lys Leu Lys Lys Phe Lys Ile Glu Ile Glu Ala Met
 420 425 430
 Ile Lys Lys Tyr Val Thr Lys Val Cys Pro Ser Lys Leu
 435 440 445

<210> 53
 <211> 1326
 <212> DNA
 <213> Taxus cuspidata

<400> 53
 atggagaagg caggctcaac agacttccat gtaaagaaat ttgatccagt catggtagcc 60
 ccaagccttc catcgcccaa agctaccgtc cagctctctg tcgttgatag cctaacaatc 120
 tgcaggggaa tttttaacac gttgttggtt ttcaatgccc ctgacaacat ttctgcagat 180
 cctgtaaaaa taattagaga ggctctctcc aagggtgttg tgtattattt ccctcttgct 240
 gggcggctca gaagtaaaga aattggggaa cttgaagtgg agtgcacagg ggatgggtgct 300
 ctgtttgtgg aagccatggt ggaagacacc atttcagtct tacgagatct ggatgacctc 360
 aatccatcat ttcagcagtt agtttttttg catccattgg acactgctat tgaggatctt 420
 catcttgtga ttgttcaggt aacacgtttt acatgtgggg gcattgccgt tggagtgact 480
 ttgccccata gtgtatgtga tggacgtgga gcagcccagt ttgttacagc actggcagag 540
 atggcgaggg gagaggttaa gccctcacta gaaccaatat ggaatagaga attgttgaac 600
 cctgaagacc ctctacatct ccagttaaat caatttgatt cgatatgccc acctccaatg 660
 ctggaggaat tgggtcaagc ttcttttgtt ataaacgttg acaccataga atatatgaag 720
 caatgtgtca tggaggaatg taatgaattt tgttcgtctt ttgaagtagt ggcagcattg 780
 gtttgatag cacggacaaa ggctcttcaa attccacata ctgagaatgt gaagcttctc 840
 tttgcgatgg atttgaggaa attatttaat cccccacttc caaatggata ttatggtaat 900
 gccattggta ctgcatatgc aatggataat gtccaagacc tcttaaatgg atctcttttg 960
 cgtgctataa tgattataaa aaaagcaaag gctgatttaa aagataatta ttcgagggtca 1020
 agggtagtta caaaccataa ttcattagat gtgaacaaga aatccgacaa cattcttgca 1080
 ttgagtgact ggaggcgggt gggattttat gaagccgatt ttgggtgggg aggtccactg 1140
 aatgtaagtt ccctgcaacg gttggaaaat ggattgccta tgttttagtac ttttctatac 1200
 ctactacctg ccaaaaacaa gtctgatgga atcaagctgc tactgtcttg tatgccacca 1260
 acaacattga aatcatttaa aattgtaatg gaagctatga tagagaaata tgtaagtaaa 1320
 gtgtga 1326

<210> 54
 <211> 441
 <212> PRT
 <213> Taxus cuspidata

<400> 54
 Met Glu Lys Ala Gly Ser Thr Asp Phe His Val Lys Lys Phe Asp Pro
 1 5 10 15
 Val Met Val Ala Pro Ser Leu Pro Ser Pro Lys Ala Thr Val Gln Leu
 20 25 30

Ser Val Val Asp Ser Leu Thr Ile Cys Arg Gly Ile Phe Asn Thr Leu
 35 40 45
 Leu Val Phe Asn Ala Pro Asp Asn Ile Ser Ala Asp Pro Val Lys Ile
 50 55 60
 Ile Arg Glu Ala Leu Ser Lys Val Leu Val Tyr Tyr Phe Pro Leu Ala
 65 70 75 80
 Gly Arg Leu Arg Ser Lys Glu Ile Gly Glu Leu Glu Val Glu Cys Thr
 85 90 95
 Gly Asp Gly Ala Leu Phe Val Glu Ala Met Val Glu Asp Thr Ile Ser
 100 105 110
 Val Leu Arg Asp Leu Asp Asp Leu Asn Pro Ser Phe Gln Gln Leu Val
 115 120 125
 Phe Trp His Pro Leu Asp Thr Ala Ile Glu Asp Leu His Leu Val Ile
 130 135 140
 Val Gln Val Thr Arg Phe Thr Cys Gly Gly Ile Ala Val Gly Val Thr
 145 150 155 160
 Leu Pro His Ser Val Cys Asp Gly Arg Gly Ala Ala Gln Phe Val Thr
 165 170 175
 Ala Leu Ala Glu Met Ala Arg Gly Glu Val Lys Pro Ser Leu Glu Pro
 180 185 190
 Ile Trp Asn Arg Glu Leu Leu Asn Pro Glu Asp Pro Leu His Leu Gln
 195 200 205
 Leu Asn Gln Phe Asp Ser Ile Cys Pro Pro Pro Met Leu Glu Glu Leu
 210 215 220
 Gly Gln Ala Ser Phe Val Ile Asn Val Asp Thr Ile Glu Tyr Met Lys
 225 230 235 240
 Gln Cys Val Met Glu Glu Cys Asn Glu Phe Cys Ser Ser Phe Glu Val
 245 250 255
 Val Ala Ala Leu Val Trp Ile Ala Arg Thr Lys Ala Leu Gln Ile Pro
 260 265 270
 His Thr Glu Asn Val Lys Leu Leu Phe Ala Met Asp Leu Arg Lys Leu
 275 280 285
 Phe Asn Pro Pro Leu Pro Asn Gly Tyr Tyr Gly Asn Ala Ile Gly Thr
 290 295 300
 Ala Tyr Ala Met Asp Asn Val Gln Asp Leu Leu Asn Gly Ser Leu Leu
 305 310 315 320
 Arg Ala Ile Met Ile Ile Lys Lys Ala Lys Ala Asp Leu Lys Asp Asn
 325 330 335
 Tyr Ser Arg Ser Arg Val Val Thr Asn Pro Tyr Ser Leu Asp Val Asn
 340 345 350
 Lys Lys Ser Asp Asn Ile Leu Ala Leu Ser Asp Trp Arg Arg Leu Gly

355 360 365
 Phe Tyr Glu Ala Asp Phe Gly Trp Gly Gly Pro Leu Asn Val Ser Ser
 370 375 380
 Leu Gln Arg Leu Glu Asn Gly Leu Pro Met Phe Ser Thr Phe Leu Tyr
 385 390 395 400
 Leu Leu Pro Ala Lys Asn Lys Ser Asp Gly Ile Lys Leu Leu Leu Ser
 405 410 415
 Cys Met Pro Pro Thr Thr Leu Lys Ser Phe Lys Ile Val Met Glu Ala
 420 425 430
 Met Ile Glu Lys Tyr Val Ser Lys Val
 435 440

<210> 55
 <211> 1347
 <212> DNA
 <213> *Taxus cuspidata*

<400> 55
 atggagaagg gaaatgagag tgatgtgcca gaattgcatg tacagatctg tgagcggggtg 60
 atggtgaaac catgcgtgcc ttctccttcg ccaaactctg tcctccagct ctccgcgggtg 120
 gacagactgc cagggatgaa gtttgctact tttagcgccg tgtagtcta caatgccagc 180
 tctcactcca tttttgcaaa tcctgcacag attattcggc aggcctctctc caaggtgttg 240
 cagtattatc ccgcttttgc cgggcggatc agacagaaag aaaatgagga actggaagtg 300
 gagtgcacag gggaggggtgc gctgtttgtg gaagccctgg tcgacaatga tctttcagtc 360
 ttgcgagatt tggatgcca aaatgcatt tatgagcagt tgctcttttc gcttccgccc 420
 aatatacagg ttcaggacct ccattcctctg attcttcagg taactcgttt tacgtgtgga 480
 ggtttttgtg tgggagtagg ttttcacat ggtatatgcg acgcacgagg aggaactcaa 540
 tttcttcaag gcctagcaga tatggcaagg ggagagacta agccttttagt ggaaccagta 600
 tggaatagag aactgataaa gcccgagat ctaatgcacc tccaatttca taagtttggt 660
 ttgatacgcc aacctctaaa acttgatgaa atttgtcaag catcttttac tataaactca 720
 gagataataa attacatcaa acaatgtgtt atagaagaat gtaacgaaat tttctctgca 780
 tttgaagtgt tagtagcatt aacttgata gcaaggacaa aggccttttca aattccacat 840
 aatgagaatg tgatgatgct ctttggaatg gacgcgagga aatattttta tccccactt 900
 ccaaagggat attatggtta tgccattggt acttcatgtg taattgaaaa tgtacaagac 960
 ctcttaaatg gatctctttc gcgtgctgta atgattacaa agaaatcaaa gatcccttta 1020
 attgagaatt taaggtcaag aattgtggcg aaccaatctg gagtagatga ggaaattaag 1080
 catgaaaacg tagttggatt tggagattgg aggcgattgg gatttcatga agtggacttc 1140
 ggatcgggag atgcagtga catcagcccc atacaacaac gactagagga tgatcaattg 1200
 gctatgcgaa attattttct tttccttcga ccttacaagg acatgcctaa tggaatcaaa 1260
 atactaatgt tcatggatcc atcaagagt aaattattca aagatgaaat ggaagccatg 1320
 ataattaaat atatgccgaa agcctaa 1347

<210> 56
 <211> 448
 <212> PRT
 <213> *Taxus cuspidata*

<400> 56
 Met Glu Lys Gly Asn Ala Ser Asp Val Pro Glu Leu His Val Gln Ile
 1 5 10 15
 Cys Glu Arg Val Met Val Lys Pro Cys Val Pro Ser Pro Ser Pro Asn
 20 25 30
 Leu Val Leu Gln Leu Ser Ala Val Asp Arg Leu Pro Gly Met Lys Phe

35					40					45					
Ala	Thr	Phe	Ser	Ala	Val	Leu	Val	Tyr	Asn	Ala	Ser	Ser	His	Ser	Ile
50	--					55					60				
Phe	Ala	Asn	Pro	Ala	Gln	Ile	Ile	Arg	Gln	Ala	Leu	Ser	Lys	Val	Leu
65					70					75					80
Gln	Tyr	Tyr	Pro	Ala	Phe	Ala	Gly	Arg	Ile	Arg	Gln	Lys	Glu	Asn	Glu
				85					90					95	
Glu	Leu	Glu	Val	Glu	Cys	Thr	Gly	Glu	Gly	Ala	Leu	Phe	Val	Glu	Ala
			100					105					110		
Leu	Val	Asp	Asn	Asp	Leu	Ser	Val	Leu	Arg	Asp	Leu	Asp	Ala	Gln	Asn
		115					120					125			
Ala	Ser	Tyr	Glu	Gln	Leu	Leu	Phe	Ser	Leu	Pro	Pro	Asn	Ile	Gln	Val
		130				135					140				
Gln	Asp	Leu	His	Pro	Leu	Ile	Leu	Gln	Val	Thr	Arg	Phe	Thr	Cys	Gly
145					150					155					160
Gly	Phe	Val	Val	Gly	Val	Gly	Phe	His	His	Gly	Ile	Cys	Asp	Ala	Arg
				165					170					175	
Gly	Gly	Thr	Gln	Phe	Leu	Gln	Gly	Leu	Ala	Asp	Met	Ala	Arg	Gly	Glu
			180					185					190		
Thr	Lys	Pro	Leu	Val	Glu	Pro	Val	Trp	Asn	Arg	Glu	Leu	Ile	Lys	Pro
		195					200					205			
Glu	Asp	Leu	Met	His	Leu	Gln	Phe	His	Lys	Phe	Gly	Leu	Ile	Arg	Gln
	210					215					220				
Pro	Leu	Lys	Leu	Asp	Glu	Ile	Cys	Gln	Ala	Ser	Phe	Thr	Ile	Asn	Ser
225					230					235					240
Glu	Ile	Ile	Asn	Tyr	Ile	Lys	Gln	Cys	Val	Ile	Glu	Glu	Cys	Asn	Glu
			245						250					255	
Ile	Phe	Ser	Ala	Phe	Glu	Val	Val	Val	Ala	Leu	Thr	Trp	Ile	Ala	Arg
			260					265					270		
Thr	Lys	Ala	Phe	Gln	Ile	Pro	His	Asn	Glu	Asn	Val	Met	Met	Leu	Phe
		275					280					285			
Gly	Met	Asp	Ala	Arg	Lys	Tyr	Phe	Asn	Pro	Pro	Leu	Pro	Lys	Gly	Tyr
	290					295					300				
Tyr	Gly	Asn	Ala	Ile	Gly	Thr	Ser	Cys	Val	Ile	Glu	Asn	Val	Gln	Asp
305					310					315					320
Leu	Leu	Asn	Gly	Ser	Leu	Ser	Arg	Ala	Val	Met	Ile	Thr	Lys	Lys	Ser
			325						330					335	
Lys	Ile	Pro	Leu	Ile	Glu	Asn	Leu	Arg	Ser	Arg	Ile	Val	Ala	Asn	Gln
			340					345					350		
Ser	Gly	Val	Asp	Glu	Glu	Ile	Lys	His	Glu	Asn	Val	Val	Gly	Phe	Gly
		355					360						365		

Asp Trp Arg Arg Leu Gly Phe His Glu Val Asp Phe Gly Ser Gly Asp
 370 375 380
 Ala Val Asn Ile Ser Pro Ile Gln Gln Arg Leu Glu Asp Asp Gln Leu
 385 390 395 400
 Ala Met Arg Asn Tyr Phe Leu Phe Leu Arg Pro Tyr Lys Asp Met Pro
 405 410 415
 Asn Gly Ile Lys Ile Leu Met Phe Met Asp Pro Ser Arg Val Lys Leu
 420 425 430
 Phe Lys Asp Glu Met Glu Ala Met Ile Ile Lys Tyr Met Pro Lys Ala
 435 440 445

<210> 57
 <211> 1317
 <212> DNA
 <213> Taxus cuspidata

<400> 57
 atggagaagt tacatgtgga tatcattgag agagtgaagg tggcgccatg ccttccatcg 60
 tccaaagaaa ttctccagct ctccagcctc gacaacatac tcagatgtta tgtcagcgta 120
 ttgttcgtct acgacagggt ttcaactggt tctgcaaate ctgcaaaaac aattcgagag 180
 gctctctcca aggttttggg ttattattca ccttttgctg gaaggctcag aaacaaagaa 240
 aatggggatc ttgaagtgga gtgcagtggt gaggggtgctg tctttgtgga agccatggcg 300
 gacaacgagc tttcagtctt acaagatttg gatgagtact gtacatcgct taaacagcta 360
 atttttacag taccaatgga tacgaaaatt gaagacctcc atcttctaag tgttcaggta 420
 actagtttta catgtggggg atttgttgtg ggaataagtt tctaccatac tatatgtgat 480
 ggaaaaggac tgggcccagtt tcttcaaggc atgagtgaga tttccaaggg agcattttaa 540
 cctcactag aaccagtatg gaatagagaa atggtgaagc ctgaacacct tatgttcctc 600
 cagtttaata attttgaatt cgtaccacat cctcttaaat ttaagaagat tgttaaagca 660
 tctattgaaa ttaactttga gacaataaat tgtttcaagc aatgcatgat ggaagaatgt 720
 aaagaaaatt tctctacatt tgaaattgta gcagcactga tttggctagc caagacaaag 780
 tctttccaaa ttccagatag tgagaatgtg aaacttatgt ttgcagtcga catgaggaca 840
 tcgtttgacc cccctcttcc aaagggatat tatggtaatg ttattggtat tgcagggtgca 900
 atagataatg tcaaagaact cttaagtgga tcaattttgc gtgctctaata tattatccaa 960
 aagacaattt tctctttaa agataatttc atatcaagaa gattgatgaa accatctaca 1020
 ttggatgtga atatgaagca tgaaaatgta gttctcttag gggattggag gaatttggga 1080
 tattatgagg cagattgtgg gtgtggaaat ctatcaaatg taattcccat ggatcaacaa 1140
 atagagcatg agtcacctgt gcaaagtaga tttatgttgc ttcgatcatc caagaacatg 1200
 caaatggaa tcaagatact aatgtccatg cctgaatcaa tggcgaaacc attcaaaagt 1260
 gaaatgaaat tcacaataaa aaaatatgtg actggagcgt gtttctctga gttatga 1317

<210> 58
 <211> 438
 <212> PRT
 <213> Taxus cuspidata

<400> 58
 Met Glu Lys Leu His Val Asp Ile Ile Glu Arg Val Lys Val Ala Pro
 1 5 10 15
 Cys Leu Pro Ser Ser Lys Glu Ile Leu Gln Leu Ser Ser Leu Asp Asn
 20 25 30

Ile	Leu	Arg	Cys	Tyr	Val	Ser	Val	Leu	Phe	Val	Tyr	Asp	Arg	Val	Ser	35	40	45
Thr	Val	Ser	Ala	Asn	Pro	Ala	Lys	Thr	Ile	Arg	Glu	Ala	Leu	Ser	Lys	50	55	60
Val	Leu	Val	Tyr	Tyr	Ser	Pro	Phe	Ala	Gly	Arg	Leu	Arg	Asn	Lys	Glu	65	70	75
Asn	Gly	Asp	Leu	Glu	Val	Glu	Cys	Ser	Gly	Glu	Gly	Ala	Val	Phe	Val	85	90	95
Glu	Ala	Met	Ala	Asp	Asn	Glu	Leu	Ser	Val	Leu	Gln	Asp	Leu	Asp	Glu	100	105	110
Tyr	Cys	Thr	Ser	Leu	Lys	Gln	Leu	Ile	Phe	Thr	Val	Pro	Met	Asp	Thr	115	120	125
Lys	Ile	Glu	Asp	Leu	His	Leu	Leu	Ser	Val	Gln	Val	Thr	Ser	Phe	Thr	130	135	140
Cys	Gly	Gly	Phe	Val	Val	Gly	Ile	Ser	Phe	Tyr	His	Thr	Ile	Cys	Asp	145	150	155
Gly	Lys	Gly	Leu	Gly	Gln	Phe	Leu	Gln	Gly	Met	Ser	Glu	Ile	Ser	Lys	165	170	175
Gly	Ala	Phe	Lys	Pro	Ser	Leu	Glu	Pro	Val	Trp	Asn	Arg	Glu	Met	Val	180	185	190
Lys	Pro	Glu	His	Leu	Met	Phe	Leu	Gln	Phe	Asn	Asn	Phe	Glu	Phe	Val	195	200	205
Pro	His	Pro	Leu	Lys	Phe	Lys	Lys	Ile	Val	Lys	Ala	Ser	Ile	Glu	Ile	210	215	220
Asn	Phe	Glu	Thr	Ile	Asn	Cys	Phe	Lys	Gln	Cys	Met	Met	Glu	Glu	Cys	225	230	235
Lys	Glu	Asn	Phe	Ser	Thr	Phe	Glu	Ile	Val	Ala	Ala	Leu	Ile	Trp	Leu	245	250	255
Ala	Lys	Thr	Lys	Ser	Phe	Gln	Ile	Pro	Asp	Ser	Glu	Asn	Val	Lys	Leu	260	265	270
Met	Phe	Ala	Val	Asp	Met	Arg	Thr	Ser	Phe	Asp	Pro	Pro	Leu	Pro	Lys	275	280	285
Gly	Tyr	Tyr	Gly	Asn	Val	Ile	Gly	Ile	Ala	Gly	Ala	Ile	Asp	Asn	Val	290	295	300
Lys	Glu	Leu	Leu	Ser	Gly	Ser	Ile	Leu	Arg	Ala	Leu	Ile	Ile	Ile	Gln	305	310	315
Lys	Thr	Ile	Phe	Ser	Leu	Lys	Asp	Asn	Phe	Ile	Ser	Arg	Arg	Leu	Met	325	330	335
Lys	Pro	Ser	Thr	Leu	Asp	Val	Asn	Met	Lys	His	Glu	Asn	Val	Val	Leu	340	345	350
Leu	Gly	Asp	Trp	Arg	Asn	Leu	Gly	Tyr	Tyr	Glu	Ala	Asp	Cys	Gly	Cys			

355		360		365
Gly Asn Leu Ser Asn Val	Ile Pro Met Asp Gln	Gln Ile Glu His Glu		
370	375	380		
Ser Pro Val Gln Ser Arg	Phe Met Leu Leu Arg	Ser Ser Lys Asn Met		
385	390	395	400	
Gln Asn Gly Ile Lys Ile	Leu Met Ser Met Pro	Glu Ser Met Ala Lys		
	405	410	415	
Pro Phe Lys Ser Glu Met	Lys Phe Thr Ile Lys	Lys Tyr Val Thr Gly		
	420	425	430	
Ala Cys Phe Ser Glu Leu				
435				